

**Schedule 26. Summary of Marginal Energy, ICAP, Transmission and Distribution
Substation Costs per kWh**

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(2001 Dollars per kWh)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Transmission Service	\$0.1338	\$0.0617	\$0.0318	\$0.0576	\$0.0437	\$0.0277	\$0.0379	\$0.0223
(2) Subtransmission Service	0.1363	0.0627	0.0322	0.0586	0.0443	0.0281	0.0384	0.0226
(3) Subtransmission Secondary Service	0.1368	0.0629	0.0323	0.0588	0.0445	0.0281	0.0385	0.0227
(4) Primary Service	0.1683	0.0676	0.0331	0.0609	0.0459	0.0289	0.0397	0.0232
(5) Primary Secondary Service	0.1698	0.0680	0.0333	0.0612	0.0462	0.0290	0.0399	0.0233
(6) Secondary Service	0.1708	0.0684	0.0334	0.0616	0.0464	0.0291	0.0401	0.0234

**Schedule 27. Summary of Marginal Energy, ICAP and Transmission Costs per kWh and
Monthly Marginal Distribution Substation Costs per kW**

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(2001 Dollars per kWh)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Transmission Service	\$0.1338	\$0.0617	\$0.0318	\$0.0576	\$0.0437	\$0.0277	\$0.0379	\$0.0223
(2) Subtransmission Service	0.1363	0.0627	0.0322	0.0586	0.0443	0.0281	0.0384	0.0226
(3) Subtransmission Secondary Service	0.1368	0.0629	0.0323	0.0588	0.0445	0.0281	0.0385	0.0227
(4) Primary Service								
per kWh	0.1424	0.0651	0.0331	0.0609	0.0459	0.0289	0.0397	0.0232
per kW per month	3.3502	0.5454	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
(5) Primary Secondary Service								
per kWh	0.1434	0.0655	0.0333	0.0612	0.0462	0.0290	0.0399	0.0233
per kW per month	3.4118	0.5554	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
(6) Secondary Service								
per kWh	0.1443	0.0658	0.0334	0.0616	0.0464	0.0291	0.0401	0.0234
per kW per month	3.4137	0.5557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Schedule 28. Summary of Monthly Lighting Costs

Customer Class			Annual Street Lighting Plant-Related	Annual Street Lighting Marginal	Monthly Street Lighting Plant-Related	Monthly Street Lighting Marginal
			Marginal Unit Costs	Customer Costs	Marginal Unit Costs	Customer Costs
			2001 Dollars per Unit	2001 Dollars per Customer	2001 Dollars per Unit	2001 Dollars per Customer
			(1)	(2) ^1	(1) / 12 (3)	(2) / 12 (4)
(1)	SC 1	Street Lights	\$136.68	\$571.92	\$11.39	\$47.66
(2)	SC 2	Street Lights	n/a	571.92	n/a	47.66
(3)	SC 3	Street Lights	n/a	571.92	n/a	47.66
(4)	SC 6	Area Lights	100.17	35.69	8.35	2.97

Note:
^1 Column (2) reflects the sum of customer service and customer accounts costs adjusted upward by the non-plant A&G loader and cash working capital.

X. EFFICIENT PRICES

Schedule 29 presents “efficient prices,” which reflect RG&E’s current electric rate structures (with seasonality for all classes) and the marginal costs computed in the study. The efficient prices include three different components:⁷

1. **charges per kWh** -- seasonally-differentiated, and (where TOU meters are present), diurnally-differentiated, which reflect market prices of energy and capacity and transmission service charges). For customers without demand meters, these charges also include distribution substation and trunkline feeder costs;
2. **charges per kW of monthly peak demand** (for distribution customers with demand meters) -- seasonally and (where TOU metering is present) diurnally-differentiated, that cover marginal substation and trunkline feeder costs;⁸

⁷ A fourth component – a separate fixed charge per design demand – could be added if design demands varied significantly within customer classes.

⁸ These demand charges include an adjustment for the estimated coincidence between individual customer peak demands and the distribution peaks in which the marginal distribution substation and trunkline feeder costs per kW are stated.

3. **fixed charges** (expressed in \$ per customer per month) – that reflect the sum of the monthly marginal customer-related costs and the typical monthly marginal local distribution facilities cost by customer class.

Schedule 30 shows another set of efficient prices for those classes without fully seasonal rate structures now. This second set preserves the current rate structures.

Schedule 29. Efficient Seasonal Prices (I)

		<u>Summer</u>	<u>Winter</u>	<u>Other</u>
Service Classification #1	Fixed charge per customer per month (\$/mo)	29.26	29.26	29.26
Secondary	Charge per kWh (cents/kWh)			
	Energy	4.80	3.52	2.76
	Generation Capacity	1.06	0.00	0.00
	Transmission	0.39	0.39	0.39
	Distribution Substation	0.54	0.00	0.00
	TOTAL price/kWh	6.79	3.91	3.15
Service Classification #4	Fixed charge per customer per month (\$/mo)	38.71	38.71	38.71
Secondary	Charge per kWh (cents/kWh)			
	Peak			
	Energy	8.88	5.76	
	Generation Capacity	5.16	0.00	
	Transmission	0.40	0.40	
	Distribution Substation	2.65	0.00	
	TOTAL PEAK price/kWh	17.08	6.16	
	Shoulder			
	Energy	5.68	4.25	3.62
	Generation Capacity	0.50	0.00	0.00
	Transmission	0.40	0.40	0.39
	Distribution Substation	0.26	0.00	0.00
	TOTAL SHOULDER price/kWh	6.84	4.64	4.01
	Off-Peak			
	Energy	3.22	2.70	2.12
	Generation Capacity	0.05	0.17	0.00
	Transmission	0.39	0.57	0.39
	Distribution Substation	0.03	0.17	0.00
	TOTAL OFF-PEAK price/kWh	3.69	3.61	2.51
Service Classification #2	Fixed charge per customer per month (\$/mo)	31.45	31.45	31.45
Secondary	Charge per kWh (cents/kWh)			
	Energy	4.80	3.52	2.76
	Generation Capacity	1.06	0.00	0.00
	Transmission	0.39	0.39	0.39
	Distribution Substation	0.54	0.00	0.00
	TOTAL price/kWh	6.79	3.91	3.15
Service Classification #3	Fixed charge per customer per month (\$/mo)	385.40	385.40	385.40
Secondary	Charge per kWh (cents/kWh)			
	Energy	4.80	3.52	2.76
	Generation Capacity	1.06	0.00	0.00
	Transmission	0.39	0.39	0.39
	TOTAL price/kWh	6.25	3.91	3.15
	Charge per peak kW (\$/kW/mo)			
	Distribution Substation	2.74	0.00	0.00
Service Classification #7	Fixed charge per customer per month (\$/mo)	168.63	168.63	168.63
Secondary	Charge per kWh (cents/kWh)			
	Energy	4.80	3.52	2.76
	Generation Capacity	1.06	0.00	0.00
	Transmission	0.39	0.39	0.39
	TOTAL price/kWh	6.25	3.91	3.15
	Charge per peak kW (\$/kW/mo)			
	Distribution Substation	2.58	0.00	0.00

Schedule 29. Efficient Seasonal Prices (II)

		<u>Summer</u>	<u>Winter</u>	<u>Other</u>
Service Classification #8				
Transmission	Fixed charge per customer per month (\$/mo)	1,939.14	1,939.14	1,939.14
	Charge per kWh (cents/kWh)			
	Peak			
	Energy	8.28	5.39	
	Generation Capacity	4.73	0.00	
	Transmission	0.37	0.37	
	TOTAL PEAK price/kWh	13.38	5.76	
	Shoulder			
	Energy	5.33	3.99	3.41
	Generation Capacity	0.46	0.00	0.00
	Transmission	0.37	0.37	0.37
	TOTAL SHOULDER price/kWh	6.17	4.37	3.79
	Off-Peak			
	Energy	2.81	2.40	1.86
	Generation Capacity	0.00	0.00	0.00
	Transmission	0.37	0.37	0.37
	TOTAL OFF-PEAK price/kWh	3.18	2.77	2.23
	Charge per peak kW (\$/kW/mo)			
	Distribution Substation	none		
Service Classification #8				
Subtransmission	Fixed charge per customer per month (\$/mo)	1,439.94	1,439.94	1,439.94
	Charge per kWh (cents/kWh)			
	Peak			
	Energy	8.42	5.48	
	Generation Capacity	4.83	0.00	
	Transmission	0.38	0.38	
	TOTAL PEAK price/kWh	13.63	5.86	
	Shoulder			
	Energy	5.42	4.06	3.46
	Generation Capacity	0.47	0.00	0.00
	Transmission	0.38	0.38	0.38
	TOTAL SHOULDER price/kWh	6.27	4.43	3.84
	Off-Peak			
	Energy	2.85	2.43	1.88
	Generation Capacity	0.00	0.00	0.00
	Transmission	0.38	0.38	0.38
	TOTAL OFF-PEAK price/kWh	3.22	2.81	2.26
	Charge per peak kW (\$/kW/mo)			
	Distribution Substation	none		

Schedule 29. Efficient Seasonal Prices (III)

		<u>Summer</u>	<u>Winter</u>	<u>Other</u>
Service Classification #8				
Subtransmission	Fixed charge per customer per month (\$/mo)	1,676.63	1,676.63	1,676.63
Secondary	Charge per kWh (cents/kWh)			
	Peak			
	Energy	8.45	5.50	
	Generation Capacity	4.85	0.00	
	Transmission	0.38	0.38	
	TOTAL PEAK price/kWh	13.68	5.88	
	Shoulder			
	Energy	5.43	4.07	3.47
	Generation Capacity	0.47	0.00	0.00
	Transmission	0.38	0.38	0.38
	TOTAL SHOULDER price/kWh	6.29	4.45	3.85
	Off-Peak			
	Energy	2.85	2.44	1.89
	Generation Capacity	0.00	0.00	0.00
	Transmission	0.38	0.38	0.38
	TOTAL OFF-PEAK price/kWh	3.23	2.81	2.27
	Charge per peak kW (\$/kW/mo)			
	Distribution Substation	none		
		<u>Summer</u>	<u>Winter</u>	<u>Other</u>
Service Classification #8				
Primary	Fixed charge per customer per month (\$/mo)	932.10	932.10	932.10
	Charge per kWh (cents/kWh)			
	Peak			
	Energy	8.77	5.69	
	Generation Capacity	5.08	0.00	
	Transmission	0.39	0.39	
	TOTAL PEAK price/kWh	14.24	6.09	
	Shoulder			
	Energy	5.62	4.20	3.58
	Generation Capacity	0.50	0.00	0.00
	Transmission	0.39	0.39	0.39
	TOTAL SHOULDER price/kWh	6.51	4.59	3.97
	Off-Peak			
	Energy	2.93	2.50	1.93
	Generation Capacity	0.00	0.00	0.00
	Transmission	0.39	0.39	0.39
	TOTAL OFF-PEAK price/kWh	3.31	2.89	2.32
	Charge per peak kW (\$/kW/mo)			
	Distribution Substation			
	TOTAL PEAK-SHOULDER	3.22	0.00	0.00
	TOTAL OFF	0.00	0.00	0.00

Schedule 29. Efficient Seasonal Prices (IV)

		<u>Summer</u>	<u>Winter</u>	<u>Other</u>
Service Classification #8				
Secondary	Fixed charge per customer per month (\$/mo)	1,068.64	1,068.64	1,068.64
	Charge per kWh (cents/kWh)			
	Peak			
	Energy	8.88	5.76	
	Generation Capacity	5.16	0.00	
	Transmission	0.40	0.40	
	TOTAL PEAK price/kWh	14.43	6.16	
	Shoulder			
	Energy	5.68	4.25	3.62
	Generation Capacity	0.50	0.00	0.00
	Transmission	0.40	0.40	0.39
	TOTAL SHOULDER price/kWh	6.58	4.64	4.01
	Off-Peak			
	Energy	2.95	2.52	1.95
	Generation Capacity	0.00	0.00	0.00
	Transmission	0.39	0.39	0.39
	TOTAL OFF-PEAK price/kWh	3.34	2.91	2.34
	Charge per peak kW (\$/kW/mo)			
	TOTAL PEAK-SHOULDER	2.81	0.00	0.00
	TOTAL OFF	0.00	0.00	0.00
Service Classification #9				
Secondary	Fixed charge per customer per month (\$/mo)	210.86	210.86	210.86
	Charge per kWh (cents/kWh)			
	Peak			
	Energy	8.88	5.76	
	Generation Capacity	5.16	0.00	
	Transmission	0.40	0.40	
	TOTAL PEAK price/kWh	14.43	6.16	
	Shoulder			
	Energy	5.68	4.25	3.62
	Generation Capacity	0.50	0.00	0.00
	Transmission	0.40	0.40	0.39
	TOTAL SHOULDER price/kWh	6.58	4.64	4.01
	Off-Peak			
	Energy	2.95	2.52	1.95
	Generation Capacity	0.00	0.00	0.00
	Transmission	0.39	0.39	0.39
	TOTAL OFF-PEAK price/kWh	3.34	2.91	2.34
	Charge per peak kW (\$/kW/mo)			
	Distribution Substation	1.63	0.00	0.00

Schedule 29. Efficient Seasonal Prices (V)

		<u>All Months</u>			
SC1 Street Lighting Service Secondary	Fixed charge per customer per month (\$/mo)	47.66			
	Charge per Lamp per month (\$/mo)	11.39			
SC2 Street Lighting Service Customer Owned Equipment Secondary	Fixed charge per customer per month (\$/mo)	47.66			
	Charge per Lamp per month (\$/mo)	n/a			
SC3 Traffic Service Service Secondary	Fixed charge per customer per month (\$/mo)	47.66			
	Charge per Lamp per month (\$/mo)	n/a			
SC6 Area Lighting Service Secondary	Fixed charge per customer per month (\$/mo)	2.97			
	Charge per Lamp per month (\$/mo)	8.35			
			<u>Summer</u>	<u>Winter</u>	<u>Other</u>
SC1 Street Lighting Service	Charge per kWh (cents/kWh)				
SC2 Street Lighting Service	Dusk to Dawn				
Customer Owned Equipment	Energy	3.51	3.36	2.41	
SC3 Traffic Service Service	Generation Capacity	0.10	0.00	0.00	
SC6 Area Lighting Service	Transmission	0.39	0.39	0.39	
Secondary	Distribution Substation	0.05	0.00	0.00	
	TOTAL PEAK price/kWh	4.06	3.75	2.80	
	Dusk to 1AM				
	Energy	4.07	3.98	2.78	
	Generation Capacity	0.21	0.00	0.00	
	Transmission	0.39	0.39	0.39	
	Distribution Substation	0.11	0.00	0.00	
	TOTAL SHOULDER price/kWh	4.77	4.37	3.17	
	24 Hours				
	Energy	4.80	3.52	2.76	
	Generation Capacity	1.06	0.00	0.00	
	Transmission	0.39	0.39	0.39	
	Distribution Substation	0.54	0.00	0.00	
	TOTAL OFF-PEAK price/kWh	6.79	3.91	3.15	

Schedule 30. Efficient Prices With Current Rate Seasonality (I)

		<u>All Months</u>		
Service Classification #1	Fixed charge per customer per month (\$/mo)	29.26		
Secondary	Charge per kWh (cents/kWh)			
	Energy	3.63		
	Generation Capacity	0.35		
	Transmission	0.39		
	Distribution Substation	<u>0.18</u>		
	TOTAL price/kWh	4.55		
Service Classification #2	Fixed charge per customer per month (\$/mo)	31.45		
Secondary	Charge per kWh (cents/kWh)			
	Energy	3.63		
	Generation Capacity	0.35		
	Transmission	0.39		
	Distribution Substation	<u>0.18</u>		
	TOTAL price/kWh	4.55		
		<u>All Months</u>		
Service Classification #3	Fixed charge per customer per month (\$/mo)	385.40		
Secondary	Charge per kWh (cents/kWh)			
	Energy	3.63		
	Generation Capacity	0.35		
	Transmission	<u>0.39</u>		
	TOTAL price/kWh	4.37		
	Charge per peak kW (\$/kW/mo)	<u>Summer</u>	<u>Winter</u>	<u>Other</u>
	Distribution Substation	2.74	0.00	0.00
		<u>All Months</u>		
Service Classification #7	Fixed charge per customer per month (\$/mo)	168.63		
	Charge per kWh (cents/kWh)			
	Energy	3.63		
	Generation Capacity	0.35		
	Transmission	<u>0.39</u>		
	TOTAL price/kWh	4.37		
	Charge per peak kW (\$/kW/mo)	<u>Summer</u>	<u>Winter</u>	<u>Other</u>
	Distribution Substation	2.58	0.00	0.00

Schedule 30. Efficient Prices With Current Rate Seasonality (II)

		<u>All Months</u>
Service Classification #8		
Transmission	Fixed charge per customer per month (\$/mo)	1,939.14
	Charge per kWh (cents/kWh)	
	Peak	
	Energy	7.32
	Generation Capacity	3.16
	Transmission	0.37
	TOTAL PEAK price/kWh	10.85
	Shoulder	
	Energy	4.03
	Generation Capacity	0.12
	Transmission	0.37
	TOTAL SHOULDER price/kWh	4.52
	Off-Peak	
	Energy	2.32
	Generation Capacity	0.00
	Transmission	0.37
	TOTAL OFF-PEAK price/kWh	2.69
	Charge per peak kW (\$/kW/mo)	
	Distribution Substation	none
Service Classification #8		
Subtransmission	Fixed charge per customer per month	1,439.94
	Charge per kWh (cents/kWh)	
	Peak	
	Energy	7.45
	Generation Capacity	3.23
	Transmission	0.38
	TOTAL PEAK price/kWh	11.05
	Shoulder	
	Energy	4.09
	Generation Capacity	0.12
	Transmission	0.38
	TOTAL SHOULDER price/kWh	4.59
	Off-Peak	
	Energy	2.34
	Generation Capacity	0.00
	Transmission	0.38
	TOTAL OFF-PEAK price/kWh	2.72
	Charge per peak kW (\$/kW/mo)	
	Distribution Substation	none

Schedule 30. Efficient Prices With Current Rate Seasonality (III)

Service Classification #8		<u>All Months</u>
Subtransmission	Fixed charge per customer per month (\$/mo)	1,676.63
Secondary	Charge per kWh (cents/kWh)	
	Peak	
	Energy	7.47
	Generation Capacity	3.24
	Transmission	0.38
	TOTAL PEAK price/kWh	11.09
	Shoulder	
	Energy	4.10
	Generation Capacity	0.12
	Transmission	0.38
	TOTAL SHOULDER price/kWh	4.60
	Off-Peak	
	Energy	2.35
	Generation Capacity	0.00
	Transmission	0.38
	TOTAL OFF-PEAK price/kWh	2.73
	Charge per peak kW (\$/kW/mo)	
	Distribution Substation	none
		<u>All Months</u>
Service Classification #8		
Primary	Fixed charge per customer per month (\$/mo)	932.10
	Charge per kWh (cents/kWh)	
	Peak	
	Energy	7.75
	Generation Capacity	3.39
	Transmission	0.39
	TOTAL PEAK price/kWh	11.53
	Shoulder	
	Energy	4.24
	Generation Capacity	0.13
	Transmission	0.39
	TOTAL SHOULDER price/kWh	4.75
	Off-Peak	
	Energy	2.41
	Generation Capacity	0.00
	Transmission	0.39
	TOTAL OFF-PEAK price/kWh	2.80
	Charge per peak kW (\$/kW/mo)	
	Distribution Substation	1.07

Schedule 30. Efficient Prices With Current Rate Seasonality (IV)

		<u>All Months</u>
Service Classification #8		
Secondary	Fixed charge per customer per month (\$/mo)	1,068.64
	Charge per kWh (cents/kWh)	
	Peak	
	Energy	7.84
	Generation Capacity	3.45
	Transmission	0.40
	TOTAL PEAK price/kWh	11.69
	Shoulder	
	Energy	4.28
	Generation Capacity	0.13
	Transmission	0.40
	TOTAL SHOULDER price/kWh	4.80
	Off-Peak	
	Energy	2.43
	Generation Capacity	0.00
	Transmission	0.39
	TOTAL OFF-PEAK price/kWh	2.82
	Charge per peak kW (\$/kW/mo)	
	Distribution Substation	0.94
Service Classification #9		
		<u>All Months</u>
Secondary	Fixed charge per customer per month (\$/mo)	210.86
	Charge per kWh (cents/kWh)	
	Peak	
	Energy	7.84
	Generation Capacity	3.45
	Transmission	0.40
	TOTAL PEAK price/kWh	11.69
	Shoulder	
	Energy	4.28
	Generation Capacity	0.13
	Transmission	0.40
	TOTAL SHOULDER price/kWh	4.80
	Off-Peak	
	Energy	2.43
	Generation Capacity	0.00
	Transmission	0.39
	TOTAL OFF-PEAK price/kWh	2.82
	Charge per peak kW (\$/kW/mo)	
	Distribution Substation	0.54
Note:		
The demand charges above incorporate substation marginal costs multiplied by class coincidence factors that reflects, to some extent, the degree that demand recorded at the meter exceeds the customers contribution to maximum demand.		
Class	Coincidence Factor	
SC-8 Secondary	0.709129	
SC-9 Secondary	0.410515	
SC-8 Primary	0.826865	
SC-3 Secondary	0.691075	
SC-7 Secondary	0.650326	

Schedule 30. Efficient Prices With Current Rate Seasonality (V)

		<u>All Months</u>
SC1 Street Lighting Service	Fixed charge per customer per month (\$/mo)	47.66
Secondary	Charge per Lamp per month (\$/mo)	11.39
SC2 Street Lighting Service	Fixed charge per customer per month (\$/mo)	47.66
Customer Owned Equipment	Charge per Lamp per month (\$/mo)	n/a
Secondary		
SC3 Traffic Service Service	Fixed charge per customer per month (\$/mo)	47.66
Secondary	Charge per Lamp per month (\$/mo)	n/a
SC6 Area Lighting Service	Fixed charge per customer per month (\$/mo)	2.97
Secondary	Charge per Lamp per month (\$/mo)	8.35
		<u>All Months</u>
SC1 Street Lighting Service	Charge per kWh (cents/kWh)	
SC2 Street Lighting Service	Dusk to Dawn	
Customer Owned Equipment	Energy	3.00
SC3 Traffic Service Service	Generation Capacity	0.03
SC6 Area Lighting Service	Transmission	0.39
Secondary	Distribution Substation	0.01
	TOTAL PEAK price/kWh	3.43
	Dusk to 1AM	
	Energy	3.49
	Generation Capacity	0.05
	Transmission	0.39
	Distribution Substation	0.03
	TOTAL SHOULDER price/kWh	3.96
	24 Hours	
	Energy	3.63
	Generation Capacity	0.35
	Transmission	0.39
	Distribution Substation	0.18
	TOTAL OFF-PEAK price/kWh	4.55

APPENDIX A

Market Energy Cost Forecast, 2003-2007

2003

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Energy Costs	\$0.0607	\$0.0409	\$0.0365	\$0.0448	\$0.0329	\$0.0265	\$0.0281	\$0.0209
<u>Marginal Energy Costs by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0611	\$0.0411	\$0.0368	\$0.0451	\$0.0331	\$0.0266	\$0.0282	\$0.0210
(3) Subtransmission Service	0.0621	0.0417	0.0372	0.0458	0.0336	0.0270	0.0286	0.0212
(4) Subtransmission Secondary Service	0.0624	0.0419	0.0373	0.0460	0.0337	0.0270	0.0287	0.0213
(5) Primary Service	0.0647	0.0433	0.0383	0.0476	0.0348	0.0278	0.0296	0.0218
(6) Primary Secondary Service	0.0651	0.0435	0.0385	0.0479	0.0350	0.0279	0.0298	0.0219
(7) Secondary Service	0.0655	0.0438	0.0386	0.0482	0.0351	0.0280	0.0299	0.0220

2004

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Energy Costs	\$0.0469	\$0.0498	\$0.0381	\$0.0396	\$0.0343	\$0.0289	\$0.0280	\$0.0219
<u>Marginal Energy Costs by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0472	\$0.0501	\$0.0384	\$0.0398	\$0.0345	\$0.0291	\$0.0281	\$0.0220
(3) Subtransmission Service	0.0480	0.0509	0.0388	0.0404	0.0351	0.0295	0.0286	0.0223
(4) Subtransmission Secondary Service	0.0482	0.0511	0.0389	0.0406	0.0352	0.0295	0.0286	0.0223
(5) Primary Service	0.0499	0.0527	0.0400	0.0420	0.0363	0.0303	0.0295	0.0229
(6) Primary Secondary Service	0.0502	0.0530	0.0401	0.0423	0.0365	0.0305	0.0297	0.0230
(7) Secondary Service	0.0505	0.0533	0.0403	0.0425	0.0367	0.0306	0.0298	0.0231

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Energy Costs	\$0.0692	\$0.0469	\$0.0324	\$0.0491	\$0.0344	\$0.0261	\$0.0301	\$0.0201
<u>Marginal Energy Costs by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0696	\$0.0471	\$0.0326	\$0.0494	\$0.0346	\$0.0262	\$0.0303	\$0.0202
(3) Subtransmission Service	0.0708	0.0479	0.0330	0.0502	0.0351	0.0266	0.0307	0.0205
(4) Subtransmission Secondary Service	0.0710	0.0480	0.0331	0.0504	0.0352	0.0266	0.0308	0.0205
(5) Primary Service	0.0736	0.0496	0.0340	0.0521	0.0363	0.0274	0.0317	0.0210
(6) Primary Secondary Service	0.0741	0.0499	0.0341	0.0525	0.0365	0.0275	0.0319	0.0211
(7) Secondary Service	0.0745	0.0502	0.0343	0.0528	0.0367	0.0276	0.0321	0.0212

2006

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Energy Costs	\$0.0817	\$0.0538	\$0.0242	\$0.0532	\$0.0376	\$0.0227	\$0.0329	\$0.0174
<u>Marginal Energy Costs by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0822	\$0.0541	\$0.0244	\$0.0535	\$0.0378	\$0.0228	\$0.0330	\$0.0175
(3) Subtransmission Service	0.0836	0.0549	0.0247	0.0544	0.0384	0.0231	0.0335	0.0177
(4) Subtransmission Secondary Service	0.0839	0.0551	0.0247	0.0546	0.0385	0.0231	0.0336	0.0177
(5) Primary Service	0.0870	0.0569	0.0254	0.0566	0.0397	0.0238	0.0347	0.0181
(6) Primary Secondary Service	0.0875	0.0573	0.0255	0.0569	0.0399	0.0239	0.0348	0.0182
(7) Secondary Service	0.0880	0.0576	0.0256	0.0572	0.0402	0.0240	0.0350	0.0183

2007

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Energy Costs	\$0.0961	\$0.0612	\$0.0177	\$0.0571	\$0.0423	\$0.0200	\$0.0365	\$0.0152
<u>Marginal Energy Costs by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0967	\$0.0616	\$0.0178	\$0.0574	\$0.0425	\$0.0202	\$0.0368	\$0.0153
(3) Subtransmission Service	0.0984	0.0625	0.0180	0.0584	0.0432	0.0204	0.0373	0.0155
(4) Subtransmission Secondary Service	0.0987	0.0627	0.0181	0.0586	0.0433	0.0205	0.0374	0.0155
(5) Primary Service	0.1023	0.0648	0.0185	0.0607	0.0447	0.0210	0.0386	0.0159
(6) Primary Secondary Service	0.1030	0.0652	0.0186	0.0610	0.0449	0.0211	0.0388	0.0159
(7) Secondary Service	0.1036	0.0656	0.0187	0.0614	0.0452	0.0212	0.0390	0.0160

APPENDIX B

Market Capacity Cost Forecast, 2003-2007

2003

	Summer Season			Winter Season	Base Season
	Peak	Shoulder	Off-Peak		
	(2001 Dollars per kWh)				
	(1)	(2)	(3)	(4)	(5)
(1) Marginal Capacity Costs	\$0.0398	\$0.0039	\$0.0000	\$0.0000	\$0.0000
<u>Marginal Cost to Provide Required Capacity by Voltage Level, Adjusted for Losses and Working Capital</u>					
(2) Transmission Service	\$0.0470	\$0.0046	\$0.0000	\$0.0000	\$0.0000
(3) Subtransmission Service	0.0480	0.0047	0.0000	0.0000	0.0000
(4) Subtransmission Secondary Service	0.0482	0.0047	0.0000	0.0000	0.0000
(5) Primary Service	0.0505	0.0049	0.0000	0.0000	0.0000
(6) Primary Secondary Service	0.0509	0.0049	0.0000	0.0000	0.0000
(7) Secondary Service	0.0513	0.0050	0.0000	0.0000	0.0000

	Summer Season			Winter Season	Base Season
	Peak	Shoulder	Off-Peak		
	(2001 Dollars per kWh)				
	(1)	(2)	(3)	(4)	(5)
(1) Marginal Capacity Costs	\$0.0396	\$0.0038	\$0.0000	\$0.0000	\$0.0000
<u>Marginal Cost to Provide Required Capacity by Voltage Level, Adjusted for Losses and Working Capital</u>					
(2) Transmission Service	\$0.0468	\$0.0045	\$0.0000	\$0.0000	\$0.0000
(3) Subtransmission Service	0.0478	0.0046	0.0000	0.0000	0.0000
(4) Subtransmission Secondary Service	0.0480	0.0046	0.0000	0.0000	0.0000
(5) Primary Service	0.0502	0.0049	0.0000	0.0000	0.0000
(6) Primary Secondary Service	0.0506	0.0049	0.0000	0.0000	0.0000
(7) Secondary Service	0.0510	0.0049	0.0000	0.0000	0.0000

2005

	Summer Season			Winter Season	Base Season
	Peak	Shoulder	Off-Peak		
	(2001 Dollars per kWh)				
	(1)	(2)	(3)	(4)	(5)
(1) Marginal Capacity Costs	\$0.0395	\$0.0038	\$0.0000	\$0.0000	\$0.0000
<u>Marginal Cost to Provide Required Capacity by Voltage Level, Adjusted for Losses and Working Capital</u>					
(2) Transmission Service	\$0.0467	\$0.0045	\$0.0000	\$0.0000	\$0.0000
(3) Subtransmission Service	0.0477	0.0046	0.0000	0.0000	0.0000
(4) Subtransmission Secondary Service	0.0479	0.0046	0.0000	0.0000	0.0000
(5) Primary Service	0.0501	0.0049	0.0000	0.0000	0.0000
(6) Primary Secondary Service	0.0505	0.0049	0.0000	0.0000	0.0000
(7) Secondary Service	0.0509	0.0049	0.0000	0.0000	0.0000

	Summer Season			Winter Season	Base Season
	Peak	Shoulder	Off-Peak		
	(2001 Dollars per kWh)				
	(1)	(2)	(3)	(4)	(5)
(1) Marginal Capacity Costs	\$0.0395	\$0.0038	\$0.0000	\$0.0000	\$0.0000
<u>Marginal Cost to Provide Required Capacity by Voltage Level, Adjusted for Losses and Working Capital</u>					
(2) Transmission Service	\$0.0466	\$0.0045	\$0.0000	\$0.0000	\$0.0000
(3) Subtransmission Service	0.0477	0.0046	0.0000	0.0000	0.0000
(4) Subtransmission Secondary Service	0.0479	0.0046	0.0000	0.0000	0.0000
(5) Primary Service	0.0501	0.0049	0.0000	0.0000	0.0000
(6) Primary Secondary Service	0.0505	0.0049	0.0000	0.0000	0.0000
(7) Secondary Service	0.0509	0.0049	0.0000	0.0000	0.0000

2007

	Summer Season			Winter Season	Base Season
	Peak	Shoulder	Off-Peak		
	(2001 Dollars per kWh)				
	(1)	(2)	(3)	(4)	(5)
(1) Marginal Capacity Costs	\$0.0393	\$0.0038	\$0.0000	\$0.0000	\$0.0000
<u>Marginal Cost to Provide Required Capacity by Voltage Level, Adjusted for Losses and Working Capital</u>					
(2) Transmission Service	\$0.0464	\$0.0045	\$0.0000	\$0.0000	\$0.0000
(3) Subtransmission Service	0.0474	0.0046	0.0000	0.0000	0.0000
(4) Subtransmission Secondary Service	0.0476	0.0046	0.0000	0.0000	0.0000
(5) Primary Service	0.0499	0.0048	0.0000	0.0000	0.0000
(6) Primary Secondary Service	0.0503	0.0049	0.0000	0.0000	0.0000
(7) Secondary Service	0.0506	0.0049	0.0000	0.0000	0.0000

APPENDIX C

NYISO Transmission Service Charge Forecast, 2003-2007

2003

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Transmission Service Charges	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036
<u>Marginal Transmission Service Charges by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036
(3) Subtransmission Service	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037
(4) Subtransmission Secondary Service	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037
(5) Primary Service	0.0039	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
(6) Primary Secondary Service	0.0039	0.0039	0.0038	0.0039	0.0038	0.0038	0.0038	0.0038
(7) Secondary Service	0.0039	0.0039	0.0038	0.0039	0.0039	0.0038	0.0039	0.0038

2004

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Transmission Service Charges	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035
<u>Marginal Transmission Service Charges by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036	\$0.0036
(3) Subtransmission Service	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
(4) Subtransmission Secondary Service	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
(5) Primary Service	0.0038	0.0037	0.0037	0.0038	0.0037	0.0037	0.0037	0.0037
(6) Primary Secondary Service	0.0038	0.0038	0.0037	0.0038	0.0038	0.0037	0.0037	0.0037
(7) Secondary Service	0.0038	0.0038	0.0037	0.0038	0.0038	0.0037	0.0038	0.0037

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2005

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Transmission Service Charges	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035
<u>Marginal Transmission Service Charges by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035	\$0.0035
(3) Subtransmission Service	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
(4) Subtransmission Secondary Service	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
(5) Primary Service	0.0037	0.0037	0.0036	0.0037	0.0037	0.0036	0.0036	0.0036
(6) Primary Secondary Service	0.0037	0.0037	0.0036	0.0037	0.0037	0.0036	0.0037	0.0036
(7) Secondary Service	0.0037	0.0037	0.0036	0.0037	0.0037	0.0037	0.0037	0.0036

2006

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Transmission Service Charges	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034
<u>Marginal Transmission Service Charges by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034	\$0.0034
(3) Subtransmission Service	0.0035	0.0035	0.0034	0.0035	0.0035	0.0034	0.0035	0.0034
(4) Subtransmission Secondary Service	0.0035	0.0035	0.0034	0.0035	0.0035	0.0035	0.0035	0.0034
(5) Primary Service	0.0036	0.0036	0.0035	0.0036	0.0036	0.0035	0.0036	0.0035
(6) Primary Secondary Service	0.0036	0.0036	0.0035	0.0036	0.0036	0.0036	0.0036	0.0035
(7) Secondary Service	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036

2007

	Summer Season			Winter Season			Base Season	
	Peak	Shoulder	Off-Peak	Peak	Shoulder	Off-Peak	Shoulder	Off-Peak
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Marginal Transmission Service Charges	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033
<u>Marginal Transmission Service Charges by Voltage Level, Adjusted for Losses and Working Capital</u>								
(2) Transmission Service	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033	\$0.0033
(3) Subtransmission Service	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034
(4) Subtransmission Secondary Service	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034
(5) Primary Service	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0034
(6) Primary Secondary Service	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
(7) Secondary Service	0.0036	0.0035	0.0035	0.0036	0.0035	0.0035	0.0035	0.0035

**NATIONAL ECONOMIC
RESEARCH ASSOCIATES**

777 SOUTH FIGUEROA STREET, SUITE 4200
LOS ANGELES, CA 90017
TEL: 213.346.3000 FAX: 213.346.3030
INTERNET: <http://www.nera.com>

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Rochester Gas & Electric Corporation

Marginal Cost of Gas Service

Prepared by

Hethie S. Parmesano

William F. Rankin

Amparo Nieto

June 22, 2001

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Rochester Gas & Electric Corporation

Marginal Cost of Gas Service

I. INTRODUCTION

Rochester Gas & Electric Corporation (RG&E) retained National Economic Research Associates, Inc. (NERA) to prepare an estimate of the company's marginal costs of gas service. This report describes the methods for estimating the procurement, transmission, distribution and customer-related costs, and presents summary tables of the results.

What are marginal costs? Marginal cost is defined as the change in total cost with respect to a small change in output. To quantify the marginal costs of gas service one must ask and answer the question: What are the additional costs that would be incurred with changes gas delivered and consumed at different times of the year and size and number of customers served.

Our method for estimating marginal costs is based on the system planning process. We determine the marginal cost of gas by examining the utility's planning processes to determine what drives new investment and purchase decisions and how changes in consumption affect system operations. The method is not a formula, but a series of guidelines outlining what should be measured and how the measurements can be made.

The gas marginal cost elements that we have developed can be grouped in three main categories:

1. Marginal "procurement" costs, including the cost of gas commodity delivered at the RG&E's city gate.
2. Marginal "delivery" costs, including:
 - a. transmission mains;
 - b. high-pressure regulator stations and distribution mains ;
 - c. medium-pressure regulator stations and medium & low-pressure distribution mains;

3. Marginal customer-related costs, including:

- a. Meters, house regulators, relief valves and service laterals;
- b. Customer-related expenses (meter-reading, billing, accounting, customer information and customer service).

II. COSTING/PRICING PERIODS

Some elements of the gas delivery system are sized based on peak hour requirements, while others are based on peak day or longer requirements. However since virtually all gas customers are metered on a monthly basis, with no recording of usage in shorter time periods, we have developed monthly estimates of the marginal cost components that vary with consumption. For purposes of showing how the marginal costs translate into efficient prices, we have grouped the months into winter (December to March) and non-winter (April to November) prices.

III. MARGINAL PROCUREMENT COSTS

In a competitive gas market, the short-run marginal cost of gas commodity is the spot market price of gas. If an RG&E customer needs a little more or a little less gas, RG&E adjusts its spot market purchases. The spot market prices RG&E faces are delivered prices at two nearby hubs (Dawn and Southpoint). On a long-term planning basis, RG&E does not purchase all gas at spot prices; approximately half of its customers' requirements are purchased under long-term contracts for supply, transport and storage. However, as long as RG&E is purchasing some gas on the spot market, the cost of spot gas and its transportation to the city gate is RG&E's marginal procurement cost.

A. Marginal Delivered Gas Commodity Costs

RG&E provided a forecast of monthly spot prices at Dawn and Southpoint for the years 2002 & 2003. Gas commodity delivered from these two hubs is RG&E's marginal resource. We computed a simple average of the two price forecasts for each month. Schedule 1 shows the monthly forecast prices for 2002.

B. Adjustments for working capital and losses

The marginal procurement costs are adjusted by a small factor to account for the cost of financing working capital necessary because RG&E must pay for these services before it is reimbursed by its customers. The financing cost includes a cost of capital component (RG&E's estimated weighted average cost of capital) and an income tax component that accounts for the fact that the equity portion of the financing is taxable. The marginal procurement costs were also adjusted for marginal losses incurred in moving the gas from RG&E's city gate through RG&E's local transmission and distribution systems. We used a loss factor of 1.87 percent, the value authorized by the Commission. The marginal gas procurement costs after these two adjustments (working capital and losses) are shown on Schedule 1. Comparable values for 2003 are shown in Appendix A.

Schedule 1. Marginal Gas Commodity Costs Adjusted by Working Capital & Losses

Month	Gas Delivered Commodity Prices \$/Dt (2001\$)	Cash Working Capital (1) x 1.66% (2)	Revenue Req. for Working Capital (2) x 12.520% (3)	Gas Commodity Prices Adjusted by Working Capital \$/Dt (2001\$) (1)+(3) (4)	Gas Comm. Prices Adjusted by Working Capital and Losses \$/Dt (2001\$) (4) x 1.0187 (5)
Jan	5.16	0.09	0.01	5.17	5.27
Feb	5.02	0.08	0.01	5.03	5.12
Mar	4.82	0.08	0.01	4.83	4.92
April	4.29	0.07	0.01	4.30	4.38
May	4.21	0.07	0.01	4.22	4.30
June	4.26	0.07	0.01	4.26	4.34
July	4.30	0.07	0.01	4.31	4.39
Aug	4.32	0.07	0.01	4.33	4.41
Sept	4.34	0.07	0.01	4.35	4.43
Oct	4.37	0.07	0.01	4.38	4.46
Nov	4.60	0.08	0.01	4.61	4.70
Dec	4.74	0.08	0.01	4.75	4.84

n/e/r/a

Consulting Economists

IV. MARGINAL DELIVERY COSTS

A. Marginal transmission investment

Interstate pipelines bring gas from the NY delivery area to RG&E's city gate. From there RG&E has some high-pressure transmission facilities (mains operating at above 124 psi) that move the gas to the high-pressure regulator stations that feed the distribution system. A typical marginal cost study analyzes marginal transmission costs by dividing the cost of planned transmission investment related to growth and the demand growth triggering that investment. The annualized investment per MCF/day is then assigned to periods of the year based on the relative likelihood that demand growth in each period will require additional investment (typically the measure used is probability of peak).

Because information on specific growth related gas transmission projects was not available, this study uses a different approach. RG&E provided information on a "conceptual" transmission budget that is typical of transmission projects RG&E would undertake to meet a significant increase in peak demand. The transmission budget used in the model is assumed to add 15 percent of capacity to the transmission system. We divided the project cost by the capacity increase, and then adjusted the result by a reserve margin of 20 percent to convert the cost per unit of capacity into a marginal cost per unit of demand (see Schedule 2).

Schedule 2. Derivation of Marginal Transmission Investment

(1)	Total Transmission Investment 2001-2005 (Thousands of 2001 Dollars)	<u>\$3,000</u>
(2)	Additions to Capacity (2001-2005) (MMCF/day of capacity)	<u>75</u>
(3)	Marginal Transmission Investment Cost (2001 Dollars per MCF/day of capacity) (1)/(2)	<u>\$40.00</u>
(4)	Marginal Investment Cost Adjusted by Reserve Margin (20%) (3)*1.2 (2001 Dollars/MCF/day of demand growth)	<u>\$48.00</u>

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The annual marginal transmission investment cost was then time-differentiated using relative probability of peak day (annualization is discussed in section VIII below). The probability of peak calculation used daily demands for the period March 1997 to March 2001 and, assuming that the demands for a given day type (weekday, Saturday and Sunday in each month) are normally distributed, calculated the probability of demand in a given day type exceeding the actual peak demand for that year.¹ The resulting monthly factors are shown on Schedule 26, col. (1).

B. Marginal Investment in High-Pressure Distribution Facilities

Regulator stations are sized based upon the downstream demand, making an allowance for future load growth potential in the area and adequate reserves to insure system reliability as expressed in cubic feet per hour. For the marginal costs of high-pressure regulator stations (250/120 psi), we used the current value of a typical high-pressure regulator station and divided it by its capacity, adjusted by a reserve margin.

The resulting marginal cost (in \$ per MCF/day) is shown in Schedule 3. Because these stations must be sized to handle expected peak hour demands, we time-differentiated the annualized cost (as described in section VIII below), using the same relative probability of peak day factors described above.

The marginal cost of high-pressure distribution mains (i.e., those mains operating between 60 and 124 psi) is driven by increases in the peak day demand. Forecasts of increases in peak demand were not available. Therefore, we divided the high-pressure distribution budget for years 2001-2005 by estimated additions to capacity (MCF/day) over the same period, and applied a reserve-margin adjustment factor to convert the cost per unit of capacity into a marginal cost per unit of demand (see Schedule 4). We then time-differentiated the annualized cost (described in section VIII below), using relative probability of peak day.

¹ The actual computation indexes the demands by the annual average daily demand so that multiple years' data can be combined.

Schedule 3. Derivation of Marginal High-Pressure Regulator Station Investment

(1) Current Value of Typical High-Pressure Regulator Station (2001 Dollars)	<u>\$40,813</u>
(2) Capacity of the typical High-Pressure Regulator Station (MCF/day)	<u>4,220</u>
(3) Marginal Investment cost of High-Pressure Regulator Station (2001 Dollars/MCF/day of capacity) (1) / (2)	<u>\$9.67</u>
(4) Marginal Investment Cost Adjusted by Reserve Margin (20%) (2001 Dollars/MCF/day of demand growth) (3)*1.2	<u>\$11.61</u>

Schedule 4. Derivation of Marginal High-Pressure Distribution Mains Investment

(1)	Investment in Load-Related Additions to High-Pressure Distribution Mains, 2001-2005 (Thousands of 2001 Dollars)	<u>\$10,688</u>
(2)	Additions to Capacity (2001-2005) (MMCF/Day)	<u>81.33</u>
(3)	Marginal Investment in Load-Related High-pressure distribution mains (2001 Dollars/MCF/Day of capacity) (1) / (2)	<u>\$131.42</u>
(4)	Marginal Investment Cost Adjusted by Reserve Margin (20%) (3)*1.2 (2001 Dollars/MCF/day of demand growth)	<u>\$157.70</u>

C. Marginal Investment in Medium & Low-Pressure Distribution Facilities

Local gas distribution facilities (the medium and low-pressure portions of the system) are typically designed using engineering design standards that take into consideration the expected long-term maximum demands of customers that will use them. In short, the medium and low-pressure distribution system is designed based on the design load of the customers to be served, not specifically on the number of customers or their actual loads at any given moment. The costs of this portion of the system are marginal when the mains are installed and if they are ever replaced, but do not vary with the customer's actual demands from month to month or year to year. These marginal costs can be recovered when a customer is connected to the system. Some of these costs are recovered up front through a customer contribution in aid of construction, but other costs are typically recovered over time through rates.

Medium-pressure regulator stations connect the high-pressure distribution system to the medium-pressure system. We estimated the cost of a typical medium-pressure regulator station per unit of capacity (MCF/day). Since these regulator stations are sized on the basis of the

aggregate design demand, and not actual peak demand, we did not apply a reserve margin factor (See Schedule 5).

Schedule 5. Derivation of Marginal Medium-Pressure Regulator Station Investment

(1) Current Value of Typical Medium pressure Regulator Station (2001 Dollars)	<u>\$42,130</u>
(2) Capacity of the typical Medium-Pressure Regulator Station (2001) (MCF/day)	<u>1,500</u>
(3) Marginal Investment in Medium-pressure Regulator Station (2001 Dollars/MCF/day) (1) / (2)	<u>\$28.09</u>

Schedule 6 shows the derivation of marginal investment in medium and low-pressure distribution mains. These mains are sized on the basis of the aggregate design demand, and not actual peak load. Using the assumptions that (1) the unit marginal cost of local distribution mains for customers of various design demands is the same over time, (2) the investment in such facilities on the entire RG&E system is typical, and (3) meter capacity is a good basis for estimating design demand, we divided the current value (2001 dollars) of all existing medium and low-pressure mains² by the “aggregate design demand” at the customer premises. The “aggregate design demand” was derived from the total meter capacity in the system, with the exception that the residential meter capacity was reduced by 0.46 percent to account for the fact that a typical residential customer’s design demand is only 54% of the rated meter size.

The result is a system-wide average RG&E investment per MCF/day of design demand, which is our proxy for the investment needed to provide medium and low-pressure distribution facilities for new customers or replace such facilities for existing customers.

Schedule 6. Derivation of Marginal Medium & Low-Pressure Mains Investment

² Ideally, the amounts funded up-front by customers should be subtracted from the total investment, in order to avoid double-counting. However, we did not have a good estimate of these up-front payments.

(1) Current Value of Existing Medium & Low Pressure Distribution Mains (Thousands of 2001 Dollars)	<u>\$640,433</u>
(2) Aggregate Design Demand at Customer Premises (2001) (MMCF/Day)	<u>1,221</u>
(3) Marginal Investment in Medium&Low-pressure distribution mains (2001 Dollars/MCF/Day) (1) / (2)	<u>\$524</u>

D. Transmission and Distribution Operation and Maintenance Expenses

O&M expenses depend on the amount of plant in service. The addition of transmission and distribution facilities to meet increments in peak demand or design demand gives rise to increased O&M expenses as well. Distribution O&M expenses are, therefore, marginal costs. Because detailed O&M budgets were not available, we used RG&E's average level of distribution O&M expenses in the past five years as a guide for estimating marginal O&M costs.

RG&E's accounting system does not show separate O&M expenses for transmission and distribution. Distribution O&M expenses related to "Main and Service Expenses" (Account #874) were allocated to the different transmission and distribution mains (differentiated by pressure-levels) and to service laterals in proportion to footage. Distribution overheads³ were allocated to each type of main, as well as to services and meter and house regulators. O&M expenses related to regulator stations were allocated to High-Pressure and Medium-pressure in proportion to the number of regulator stations located at each level (categorized by their outlet pressure). To compute the marginal transmission O&M costs we divided the O&M costs apportioned to transmission by the peak day loads at RG&E's city gate (see Schedule 9).

³ Distribution overheads include: Operation Supervision and Engineering (870), Other Expenses (880), Maintenance Supervision and Engineering (885), Maintenance of Other Equipment (894) and Maintenance of Structure and Improvements (886).

Schedule 9. Marginal Transmission O&M Expenses per MCF/Day

Year	Transmission O&M Expenses (Thousand Dollars) (1)	Annual Demand (MMCF/day) (2)	O&M Expense Per MCF/day (\$/MCF/day) (1) / (2) (3)	Weighted Labor and Materials Cost Index (2001=1.00) (4)	Transmission O&M Expense Per MCF/day (2001\$/MCF/day) (3) / (4) (5)
(1) 1996	143.4	411.4	0.349	0.87	0.40
(2) 1997	140.1	348.1	0.402	0.89	0.45
(3) 1998	142.8	400.8	0.356	0.93	0.38
(4) 1999	130.3	430.5	0.303	0.94	0.32
(5) 2000	155.9	361.7	0.431	0.97	0.44
(6) Estimated Annual Marginal Transmission O&M Expense per MCF/day ¹					\$0.40

¹ Average for years 1996-2000.

High-pressure distribution O&M expenses for mains and regulator stations were estimated by dividing the O&M costs apportioned to this type of equipment by the peak day load at the high-pressure mains (Schedules 10 & 11). In the case of medium-pressure regulator stations, O&M costs were divided by the total medium-pressure regulator station capacity (Schedule 12).

Schedule 10. Marginal High-Pressure Reg. Station O&M Expenses per MCF/Day

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	Year	High Pressure Reg. Station O&M Expenses (Thousand Dollars) (1)	Peak day load at the high-pressure mains (MMCF/day) (2)	O&M Expense Per MCF/day (\$/MCF/day) (1) / (2) (3)	Weighted Labor and Materials Cost Index (2001=1.00) (4)	High- Pressure Reg. Station O&M per MCF/day (2001\$/MCF/day) (3) / (4) (5)
(1)	1996	8.2	407	0.02	0.87	0.02
(2)	1997	7.8	345	0.02	0.89	0.03
(3)	1998	7.5	397	0.02	0.93	0.02
(4)	1999	7.5	426	0.02	0.94	0.02
(5)	2000	7.5	358	0.02	0.97	0.02
(6)	Estimated Annual Marginal High-Press. Reg. Station O&M Expense per MCF/day ¹					<u>\$0.02</u>

¹ Average for years 1996-2000.

Schedule 11. Marginal High-Pressure Mains O&M Expenses per MCF/Day

	Year	High-Pressure Distribution O&M Expenses (Thousand Dollars) (1)	Peak day load at the high-pressure mains (MMCF/day) (2)	O&M Expense Per MCF/day (\$/MCF/day) (1) / (2) (3)	Weighted Labor and Materials Cost Index (2001=1.00) (4)	High-Pressure Distribution O&M Expense Per MCF/day (2001\$/MCF/day) (3) / (4) (5)
(1)	1996	74	407	0.18	0.87	0.21
(2)	1997	72	345	0.21	0.89	0.23
(3)	1998	73	397	0.19	0.93	0.20
(4)	1999	67	426	0.16	0.94	0.17
(5)	2000	80	358	0.22	0.97	0.23
(6)	Estimated Annual Marginal High-Pressure O&M Expense per MCF/day ¹					<u>\$0.21</u>

¹ Average for years 1996-2000.

For medium & low-pressure distribution mains, apportioned O&M expenses were divided by the total design demand at customer premises to derive the marginal O&M costs

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(Schedule 13). In each case, we examined the unit costs (in constant dollars) over the five-year period and, in consultation with RG&E, selected an average of the years likely to be representative of future marginal levels of these costs.

Schedule 12. Marginal Medium-Pressure Reg. Station O&M Expenses per MCF/Day

	Year	Medium Pressure Reg. Station O&M Expenses (Thousand Dollars) (1)	Medium- Pressure Reg. Station Capacity (MMCF/day) (2)	O&M Expense Per MCF/day (\$/MCF/day) (1) / (2) (3)	Weighted Labor and Materials Cost Index (2001=1.00) (4)	Medium Pressure Reg. Station O&M per MCF/day (2001\$/MCF/day) (3) / (4) (5)
(1)	1998	746	1,803.56	0.41	0.93	0.44
(2)	1999	747	1,803.56	0.41	0.94	0.44
(3)	2000	746	1,803.56	0.41	0.97	0.43
(4)	Estimated Annual Marginal Medium pressure Reg. Station O&M per MCF/day ¹					<u>\$0.44</u>

¹ Average for years 1998-2000.

Schedule 13. Marginal Medium & Low-Pressure Mains O&M Expenses per MCF/Day

	Year	Medium & Low Pressure Main O&M Expenses (Thousand Dollars) (1)	Total Design Demand Premises (MMCF/day) (2)	O&M Expense Per MCF/day (\$/MCF/day) (1) / (2) (3)	Weighted Labor and Materials Cost Index (2001=1.00) (4)	Medium & Low Pressure Distribution O&M per MCF/day (2001\$/MCF/day) (3) / (4) (5)
(1)	1998	4,106	1,221.45	3.36	0.93	3.60
(2)	1999	3,747	1,221.45	3.07	0.94	3.25
(3)	2000	4,484	1,221.45	3.67	0.97	3.78
(4)	Estimated Annual Marginal Med&Low Pressure Distribution O&M per MCF/day ¹					<u>\$3.55</u>
	¹ Average for years 1998-2000.					

V. MARGINAL CUSTOMER-RELATED COSTS**A. Meter, House Regulator and Service Marginal Investment**

RG&E supplied the current costs of meters, house regulators, relief valves and installation for each customer category. NERA estimated an average cost by customer category, based on the composition of meters by class. These customer-related marginal investments, restated to 2001 dollars, are shown on Schedule 7.

RG&E also supplied costs of service laterals of typical diameter & length for residential, commercial, industrial and municipal (heating and non-heating) customers. Cost estimates for each customer class were derived by NERA and results are shown in Schedule 8.

Schedules 7 & 8: Installed Cost of Meter & House Regulator by Customer Class and Service Lateral by Customer Class

	Class	Description	<u>Meter & H. Reg.</u>	<u>Service Lateral</u>
			Current Average Cost (2001\$)	Current Average Cost (2001\$)
(1)	SC1RNL	SC 1 Residential Non Heat	194.91	691.60
(2)	SC1RH	SC 1 Residential Heat	196.63	691.60
(3)	SC1CNH	SC 1 Commercial Non Heat	379.39	1,368.00
(4)	SC1CH	SC 1 Commercial Heat	470.32	1,368.00
(5)	SC1IND	SC 1 Industrial	1,310.04	1,714.20
(6)	SC1MUN	SC 1 Municipal	1,070.18	1,021.80
(7)	SC3CNH	SC 3 Commercial Non Heat	5,657.70	1,368.00
(8)	SC3CH	SC 3 Commercial Heat	6,237.66	1,368.00
(9)	SC3IND	SC 3 Industrial	12,659.93	1,714.20
(10)	SC3MUN	SC 3 Municipal	7,796.75	1,021.80
(11)	SC5RNL	SC 5 Residential Non Heat	194.91	691.60
(12)	SC5RH	SC 5 Residential Heat	196.63	691.60
(13)	SC5CNH	SC 5 Commercial Non Heat	379.39	1,368.00
(14)	SC5CH	SC 5 Commercial Heat	470.32	1,368.00
(15)	SC5IND	SC 5 Industrial	1,310.04	1,714.20
(16)	SC5MUN	SC 5 Municipal	1,070.18	1,021.80

B. Meter, House Regulator and Service O&M costs

Meter, House Regulator and Service O&M costs, along with their associated overheads (as explained in section IV.D), were divided by weighted number of customers to compute marginal customer-related O&M costs (see Schedules 14 & 16). Weights for each customer class were developed using the assumption that these O&M expenses are proportional to the installed cost of the meter and service lateral, respectively.

Schedule 14. Meter and House Regulator O&M Expense per Weighted Customer

<u>Year</u>	<u>Total Meter Operation Maintenance Expenses</u> (Thousand Dollars)	<u>Average Number of Customers</u>	<u>Weighted Average Number of Customers</u>	<u>Meter & H. Reg. Expense Per Weighted Customer</u> (Dollars)	<u>Weighted Labor and Materials Cost Index</u> (2001 = 1.00)	<u>Meter & H. Reg. Expense Per Weighted Customer</u> (2001 Dollars)
			(2) x 1.23	[(1) x 1000]/(3)		(4)/(5)
	(1)	(2)	(3)	(4)	(5)	(6)
(1) 1996	5,875	278,981	343,147	17.12	0.87	19.73
(2) 1997	7,275	281,399	346,121	21.02	0.89	23.53
(3) 1998	7,958	288,899	355,346	22.39	0.93	23.99
(4) 1999	8,386	290,159	356,896	23.50	0.94	24.93
(5) 2000	8,278	297,995	366,534	22.59	0.97	23.26
(6) Estimated Annual Marginal Weighted Meter O&M Expense ¹						<u>\$23.93</u>
¹ Average for years 1997-2000.						

Schedule 16. Service Lateral O&M Expense per Weighted Customer

<u>Year</u>	<u>Total Service Lateral O&M Expenses</u> (Thousand Dollars)	<u>Average Number of Customers</u>	<u>Weighted Average Number of Customers</u>	<u>Service Lateral Expense Per Weighted Customer</u> (Dollars)	<u>Weighted Labor and Materials Cost Index</u> (2001 = 1.00)	<u>Service Lateral Expense Per Weighted Customer</u> (2001 Dollars)
			(2) x 1.08	[(1) x 1000]/(3)		(4)/(5)
	(1)	(2)	(3)	(4)	(5)	(6)
(1) 1996	2,954	278,981	301,299	9.80	0.87	11.30
(2) 1997	3,184	281,399	303,911	10.48	0.89	11.73
(3) 1998	2,670	288,899	312,011	8.56	0.93	9.17
(4) 1999	2,339	290,159	313,372	7.47	0.94	7.92
(5) 2000	2,952	297,995	321,835	9.17	0.97	9.45
(6) Estimated Annual Marginal Weighted Service Lateral O&M Expense ¹						<u>\$8.84</u>
¹ Average for years 1998-2000.						

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Marginal meter and house regulator O&M costs by customer class and Marginal O&M costs for service lateral by customer class are shown in Schedules 15 and 17, respectively.

Schedule 15. Meter and House Regulator O&M Expense by Customer Class

	Rate	Description	Weighting Factor	Annual Meter O&M Expense Per Customer (2001 Dollars) (1) x \$23.93 (2)
			(1)	(2)
(1)	SC1RNH	SC 1 Residential Non Heat	1.00	23.93
(2)	SC1RH	SC 1 Residential Heat	1.01	24.17
(3)	SC1CNH	SC 1 Commercial Non Heat	1.95	46.66
(4)	SC1CH	SC 1 Commercial Heat	2.41	57.67
(5)	SC1IND	SC 1 Industrial	6.72	160.81
(6)	SC1MUN	SC 1 Municipal	5.49	131.38
(7)	SC3CNH	SC 3 Commercial Non Heat	29.03	694.69
(8)	SC3CH	SC 3 Commercial Heat	32.00	765.76
(9)	SC3IND	SC 3 Industrial	64.95	1,554.25
(10)	SC3MUN	SC 3 Municipal	40.00	957.20
(11)	SC5RNH	SC 5 Residential Non Heat	1.00	23.93
(12)	SC5RH	SC 5 Residential Heat	1.01	24.17
(13)	SC5CNH	SC 5 Commercial Non Heat	1.95	46.66
(14)	SC5CH	SC 5 Commercial Heat	2.41	57.67
(15)	SC5IND	SC 5 Industrial	6.72	160.81
(16)	SC5MUN	SC 5 Municipal	5.49	131.38

Schedule 17. Service Lateral O&M Expense by Customer Class

	<u>Rate</u>	<u>Class</u>	<u>Weighting Factor</u>	<u>Annual Service O&M Expense Per Customer (2001 Dollars) (1) x \$8.84 (2)</u>
			(1)	(2)
(1)	SC1RNH	SC 1 Residential Non Heat	1.00	8.84
(2)	SC1RH	SC 1 Residential Heat	1.00	8.84
(3)	SC1CNH	SC 1 Commercial Non Heat	1.98	17.50
(4)	SC1CH	SC 1 Commercial Heat	1.98	17.50
(5)	SC1IND	SC 1 Industrial	2.48	21.92
(6)	SC1MUN	SC 1 Municipal	1.48	13.08
(7)	SC3CNH	SC 3 Commercial Non Heat	1.98	17.50
(8)	SC3CH	SC 3 Commercial Heat	1.98	17.50
(9)	SC3IND	SC 3 Industrial	2.48	21.92
(10)	SC3MUN	SC 3 Municipal	1.48	13.08
(11)	SC5RNH	SC 5 Residential Non Heat	1.00	8.84
(12)	SC5RH	SC 5 Residential Heat	1.00	8.84
(13)	SC5CNH	SC 5 Commercial Non Heat	1.98	17.50
(14)	SC5CH	SC 5 Commercial Heat	1.98	17.50
(15)	SC5IND	SC 5 Industrial	2.48	21.92
(16)	SC5MUN	SC 5 Municipal	1.48	13.08

C. Customer Accounts Expenses

Customer accounts expenses, composed mainly of meter-reading and billing expenses, are costs directly attributable to the existence of customers on the system. One sub-account, Information Systems expense, is fixed in the very short-term with respect to the number of customers being metered and billed, and therefore, it was excluded from the analysis. It is

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important to recognize that the marginal cost of providing customer accounts services to new customers is probably higher than the costs avoided when a customer chooses an LSE that does metering and billing, because RG&E is the metering and billing provider of last resort (POLR) and must maintain the infrastructure and operational capability to take back this customer at any time. We analyzed the level of these expenses for the last five years and settled on the assumption that the average from 1997, 1998 and 2000 is a reasonable proxy for the marginal cost in future years.⁴ Annual expenses were divided by weighted customers to obtain a customer accounts expense per weighted customer. The weighted number of customers was derived by multiplying the number of customers in each class by a factor reflecting the relative size of customer accounts expenses for each class (see Schedule 18). This entailed analyzing and apportioning detailed (5-digit) sub-accounts to customer categories. We then converted the expense per weighted customer for each year to 2001 dollars using a labor cost index.

Schedule 18. Customer Account Expenses per Weighted Customer

	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
	(1)	(2)	(3)	(4)	(5)
(1) Customer Accounts Expenses (Thousand Dollars)	\$14,878	\$14,485	\$14,365	\$17,775	\$16,505
(2) Customers	278,981	281,399	288,899	290,159	297,995
(3) Weighted Customers (2) x 1.42	396,153	399,587	410,237	412,026	423,153
(4) Expense per Weighted Customer [(1) / (3)] x 1000	\$37.56	\$36.25	\$35.02	\$43.14	\$39.01
(5) Labor Cost Index (2001=1.00)	0.8626	0.8885	0.9151	0.9426	0.9709
(6) Expense Per Weighted Customer in 2001 Dollars (4)/(5)	\$43.54	\$40.80	\$38.26	\$45.77	\$40.17
(7) Estimated Annual Marginal Expense per Customer (2001 Dollars) ¹	-----	-----	\$39.75	-----	-----
¹ Average of years 1997, 98 and 2000.					

⁴ Uncollectibles were unusually high in 1999, so we excluded that year from our average.

We developed the customer accounts expense for each major customer class as shown on Schedule 19 by multiplying the class weight by the expense per weighted customer derived on Schedule 18.

Schedule 19. Customer Account Expenses by Customer Class

	Rate	Class	Weighting Factor	Annual Customer Accounts Expense Per Customer (2001 Dollars) (1) x \$39.75 (2)
			(1)	(2)
(1)	SC1RNH	SC 1 Residential Non Heat	1.00	39.75
(2)	SC1RH	SC 1 Residential Heat	1.42	56.59
(3)	SC1CNH	SC 1 Commercial Non Heat	1.87	74.23
(4)	SC1CH	SC 1 Commercial Heat	2.42	96.09
(5)	SC1IND	SC 1 Industrial	4.99	198.48
(6)	SC1MUN	SC 1 Municipal	4.81	191.21
(7)	SC3CNH	SC 3 Commercial Non Heat	8.79	349.39
(8)	SC3CH	SC 3 Commercial Heat	11.88	472.12
(9)	SC3IND	SC 3 Industrial	36.67	1,457.76
(10)	SC3MUN	SC 3 Municipal	16.61	660.18
(11)	SC5RNH	SC 5 Residential Non Heat	0.58	22.97
(12)	SC5RH	SC 5 Residential Heat	0.63	25.03
(13)	SC5CNH	SC 5 Commercial Non Heat	1.66	66.08
(14)	SC5CH	SC 5 Commercial Heat	2.01	79.89
(15)	SC5IND	SC 5 Industrial	2.74	108.84
(16)	SC5MUN	SC 5 Municipal	1.51	59.89

D. Customer Service and Informational Expenses

Customer service and informational expenses vary with the number of customers on the system and are, therefore, marginal. We identified a number of sub-accounts as being non-marginal with respect to the number of customers being served, and therefore, they were

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excluded from the analysis.⁵ We used the average cost per weighted customer in the period 1999 to 2000 as a proxy for the marginal cost (Schedule 20). The same procedure used for customer accounts expenses was followed to generate an estimated annual expense per weighted customer and then an annual expense for each major customer class. Weighting factors were derived based on the analysis and apportioning of the detailed (5-digit) expense accounts to customer categories.

Schedule 20. Customer Services and Informational Expenses by Weighted Customer

	1995 (1)	1996 (2)	1997 (3)	1998 (4)	1999 (5)	2000 (6)
(1) Customer Service and Informational Expenses (Thousand Dollars)	\$2,081	\$2,122	\$525	\$503	\$188	\$389
(2) Customers	277,171	278,981	281,399	288,899	290,159	297,995
(3) Weighted Number of Customers (2) x 4.07	1,128,086	1,135,453	1,145,294	1,145,294	1,180,947	1,212,840
(4) Expense Per Weighted Customer [(1)/(3)] x 1000	\$1.85	\$1.87	\$0.46	\$0.44	\$0.16	\$0.32
(5) Labor Cost Index (2001 = 1.00)	0.8375	0.8626	0.8885	0.9151	0.9426	0.9709
(6) Expense Per Weighted Customer in 2001 Dollars (4)/(5)	\$2.20	\$2.17	\$0.52	\$0.48	\$0.17	\$0.33
(7) Estimated Annual Marginal Expense Per Weighted Customer (2001 Dollars) ¹	-----	-----	\$0.25	-----	-----	-----

¹ Average years 1999-2000

Annual customer service and informational costs by customer class are shown on Schedule 21.

⁵ The excluded sub-accounts are Marketing Supervision (909.06), All Other Customer Initiatives (910.00), Customer Assistance – Consumer Relations (910.05), Customer Assistance – Marketing (910.06) Customer Assistance – Dealers (910.08), Customer Assistance – Builders (910.09), Customer Assistance – Area Development (910.10), all the Informational Advertising sub-accounts (911.01-911.10), Information System Hardware, Software Maintenance (912.72) and Information System In-house Systems and Programming (912.73).

Schedule 21. Customer Services and Informational Expenses by Customer**Class**

	<u>Rate</u>	<u>Class</u>	<u>Weighting Factor</u>	<u>Annual Customer Service and Info. Expense Per Customer (2001 Dollars) (1) x \$0.25 (2)</u>
			(1)	(2)
(1)	SC1RNH	SC 1 Residential Non Heat	1.00	0.25
(2)	SC1RH	SC 1 Residential Heat	2.14	0.54
(3)	SC1CNH	SC 1 Commercial Non Heat	10.21	2.55
(4)	SC1CH	SC 1 Commercial Heat	11.83	2.96
(5)	SC1IND	SC 1 Industrial	214.39	53.60
(6)	SC1MUN	SC 1 Municipal	19.16	4.79
(7)	SC3CNH	SC 3 Commercial Non Heat	135.49	33.87
(8)	SC3CH	SC 3 Commercial Heat	182.09	45.52
(9)	SC3IND	SC 3 Industrial	214.39	53.60
(10)	SC3MUN	SC 3 Municipal	325.04	81.26
(11)	SC5RNH	SC 5 Residential Non Heat	1.76	0.44
(12)	SC5RH	SC 5 Residential Heat	2.13	0.53
(13)	SC5CNH	SC 5 Commercial Non Heat	15.37	3.84
(14)	SC5CH	SC 5 Commercial Heat	17.67	4.42
(15)	SC5IND	SC 5 Industrial	214.39	53.60
(16)	SC5MUN	SC 5 Municipal	15.12	3.78

VI. OTHER MARGINAL COSTS

A. Administrative and General Expenses

Based on our understanding of RG&E's classification of costs in the various FERC accounts for administrative and general (A&G) expenses (including social security and unemployment taxes), we divided these expenses into two categories: (1) those associated with other types of expenses and (2) those associated with plant. Accounts considered not marginal were excluded.⁶ We then used regression analyses on 16 years of historical data (1985-2000) to estimate the marginal level of non-plant-related A&G expense. Non-plant-related A&G expense in constant dollars was regressed on total O&M (less gas procurement expenses and total A&G, all in constant dollars). The coefficient of the explanatory variable would be the loading factor for this A&G component. However, the regression analysis found no significant relationship between the explanatory variable and the non-plant related A&G (the resulting coefficient is zero).

For the analysis of the plant-related A&G expenses, we found that the only A&G account directly related to the amount of plant on the system is property insurance. However, the property insurance policy does not apply to RGE's gas system, and, consequently, we set the plant-related factor as zero. The results for the two A&G loaders are shown in Schedule 22.

B. General Plant

General plant consists of items such as office buildings, warehouses, cars, trucks and other equipment. When a utility adds, transmission and distribution plant, its need for general plant increases as well. To take account of the marginal cost of general plant we developed a general-plant loading factor applicable to other marginal plant. We used regression analysis on 16 years of historical company data (1985-2000) to estimate marginal general plant. Cumulative additions to general and common plant were regressed on cumulative additions to

⁶ The following accounts were deemed not marginal, based on NERA's review of 5-digit operating expense reports provided by RG&E: Injuries and Damages (925), General Advertising Expenses (930.1), Miscellaneous General Expenses (930.2).

total plant less additions to general and common plant, both in constant dollars. The coefficient for the explanatory variable is shown on Schedule 22.

Schedule 22. Loading Factors for A&G expenses and SS and Unemployment Taxes

		<u>Estimate of Loading Factor</u>
Administrative and General Expenses and Social Security And Unemployment Taxes		
(1)	Applicable to Non plant-Related Expenses	0.00%
(2)	Applicable to Plant-Related Expenses ²	0.00%
(3)	General Plant	27.44%

VII. COMPUTATION OF CARRYING CHARGES

Sections IV and V above described the development of estimates of marginal investment in transmission and distribution facilities. To be useful in ratemaking and other marginal cost applications, the investment must be converted into annual costs using an economic carrying charge. These annual charges reflect the elements of RG&E's revenue requirement associated with incremental plant: return to stockholders and bondholders, depreciation, and taxes.

For use in a marginal cost study, the appropriate stream of annual charges is a stream that rises at the rate of inflation net of technical progress and yields the total present value of all costs over the life of the investment. In such a stream, the first year's charge represents the cost in today's dollars of having the plant or equipment for a year. It also represents the rental rate for such an investment in a competitive market.

A key element of the carrying charge computation is RG&E's expected incremental capital structure and cost. RG&E foresees financing of incremental investment through sales of

common stock, preferred stock and debt over the study period. The expected proportions are 46.23 percent common stock, 4.46 percent preferred stock and 49.31 percent debt, at costs of 11.00, 5.24 and 7.10 percent respectively.

An integral part of the economic carrying charge calculation is the estimation of the rate of inflation net of technical progress applicable over the life of the investment. While it is never easy to peg an exact rate of future inflation or technical progress, we have used the inflation rates being used by RG&E's planners.

Another component of the economic carrying charge is an adjustment for the fact that not all plant and equipment will last its estimated service life. Some components will require early replacement, causing added costs, while some will last longer than expected and produce savings. The pattern of expected required replacement for each type of plant is defined by an Iowa Curve. An adjustment for this dispersed pattern of replacements using Iowa Curves was included in the derivation of the economic carrying charges. The results of these economic carrying charge calculations are presented on Schedule 23.

Schedule 23. Derivation of Economic Carrying Charge

	<u>Mains</u>	<u>Regulator Stations</u>	<u>Services</u>	<u>House Meters, Regulators and Install.</u>
	(1)	(2)	(3)	(4)
(1) Present Value of Revenue Requirements Related to Incremental \$1,000 Investment	\$1,509.45	\$1,487.97	\$1,495.34	\$1,488.53
(2) Present Value Cost of Replacing Dispersed Retirements Related to Incremental \$1,000 Investment	\$64.60	\$109.23	\$96.21	\$46.55
(3) Total Present Value Cost Related to Incremental \$1,000 Investment (1)+(2)	\$1,574.05	\$1,597.20	\$1,591.55	\$1,535.08
(4) First-Year Annual Economic Charge Related to Incremental \$1,000 Investment	\$82.17	\$91.50	\$91.76	\$97.76
(5) First-Year Annual Economic Charge Related to Incremental Investment [(4)/\$1,000]	8.22%	9.15%	9.18%	9.78%

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VIII. COMPUTATION OF ANNUAL MARGINAL COSTS

The next step of the study was to apply the economic carrying charges to the marginal investment and add the associated expenses.

A. Annual Main and Regulator Station Unit Costs

The unit investments for transmission and distribution mains and regulator stations were adjusted upwards by the general-plant loading factor. We multiplied the resulting figures by the annual economic carrying charge percentage plus the plant-related A&G loading factor to yield the annualized plant costs. To these costs we added the associated O&M and A&G expenses and the revenue requirements for working capital. The computation of working capital includes cash working capital, materials, supplies and prepayments. Schedule 24 presents the total annual unit marginal cost calculations for mains and regulator stations operating at all pressure levels. These annualized costs are expressed in \$/MCF/day.

In Schedule 26, the annualized investment costs per MCF/day for transmission and high-pressure mains & regulator stations were then assigned to months, based on the relative likelihood that demand growth in each period would require additional investment (the measure used was probability of peak). In addition, both the monthly transmission and high-pressure distribution mains & regulator station costs were converted into \$/Dt.

Schedule 24. Derivation of Annual Marginal Main and Reg. Station Unit Costs

	Transm. Mains	High-Pressure Mains	High-Pressure Reg. Station	Med & Low Pressure Mains	Medium- pressure Reg. Station
	(1)	(2)	(3)	(4)	(5)
(1) Marginal Investment	48.00	157.70	11.61	524.32	28.09
(2) With General Plant Loading (1) x 1.2744	61.17	200.97	14.79	668.20	35.79
(3) Annual Economic Carrying Charge Related to Capital Investment	8.22%	8.22%	9.15%	8.22%	9.15%
(4) A&G Loading (plant related)	0.00%	0.00%	0.00%	0.00%	0.00%
(5) Total Annual Carrying Charge (3) + (4)	8.22%	8.22%	9.15%	8.22%	9.15%
(6) Annualized Costs (2) x (5)	\$5.03	\$16.51	\$1.35	\$54.91	\$3.28
(7) O&M Expenses	0.40	0.21	0.02	3.55	0.44
(8) O&M exp. with A&G Loading (7) x 1.0000 (Non-plant Related)	0.40	0.21	0.02	3.55	0.44
(9) Annual Cost (6) + (8)	\$5.43	\$16.72	\$1.38	\$58.45	\$3.71
Working Capital					
(10) Material and Supplies (2) x 0.32%	\$0.20	\$0.64	\$0.05	\$2.14	\$0.11
(11) Prepayments (2) x 0.48%	0.29	0.96	0.07	3.21	0.17
(12) Cash Working Capital Allowance (8) x 1.66%	0.01	0.00	0.00	0.06	0.01
(13) Total Working Capital (10) + (11) + (12)	0.50	1.61	0.12	5.40	0.29
(14) Revenue Requirement for Working Capital (13) x 12.52%	\$0.06	\$0.20	\$0.01	\$0.68	\$0.04
(15) Annual Marginal Unit Costs (9) + (14)	\$5.49	\$16.92	\$1.39	\$59.13	\$3.75

**Schedule 26. Monthly Marginal Transmission and High-Pressure Main and
Regulator Station Costs**

Month	Probability of Peak	Time-differentiation		Conversion to \$/Dt	
		Monthly Transmission Marginal Cost (\$/MCF/day)	Monthly- High-Pressure Mains & Reg. Station Mg. Cost (\$/MCF/day)	Monthly- Transmission Marginal Cost (\$/Dt)	Monthly- High-Pressure Mains & Reg. Station Mg. Cost (\$/Dt)
		(1) x 5.49	(1) x [16.92+1.39]	[(2)/30.42] /1.0116	[(3)/30.42] /1.0116
	(1)	(2)	(3)	(4)	(5)
Jan	0.76	4.15	13.84	0.13	0.45
Feb	0.04	0.22	0.72	0.01	0.02
Mar	0.09	0.47	1.58	0.02	0.05
April	0.00	0.00	0.00	0.00	0.00
May	0.00	0.00	0.00	0.00	0.00
June	0.00	0.00	0.00	0.00	0.00
July	0.00	0.00	0.00	0.00	0.00
Aug	0.00	0.00	0.00	0.00	0.00
Sept	0.00	0.00	0.00	0.00	0.00
Oct	0.00	0.00	0.00	0.00	0.00
Nov	0.00	0.00	0.00	0.00	0.00
Dec	0.12	0.65	2.17	0.02	0.07

B. Meter, House Regulator, Relief Valve, Service Lateral and Customer-related Services

The annual customer-related marginal unit costs were developed using a procedure similar to that for the other types of plant. The resulting costs (in \$ per customer) are presented by customer category in Schedule 25, pp. 1 - 3.

Schedule 25. Computation of Annual Customer-related Marginal Costs (I)

	SC1RNH	SC1RH	SC1CNH	SC1CH	SC1IND
	(2001 Dollars)				
	(1)	(2)	(3)	(4)	(5)
a) Investment - Meter, House Regulators & Services					
(1) Meter & H. Regulator Investment	194.91	196.63	379.39	470.32	1,310.04
(2) With General Plant Loading (1) x 1.274	248.40	250.58	483.49	599.37	1,669.52
(3) Annual Economic Charge Related to Capital Investment	9.78%	9.78%	9.78%	9.78%	9.78%
(4) Service Investment	691.60	691.60	1,368.00	1,368.00	1,714.20
(5) With General Plant Loading (4) x 1.274	881.38	881.38	1,743.38	1,743.38	2,184.58
(6) Annual Economic Charge Related to Capital Investment	9.18%	9.18%	9.18%	9.18%	9.18%
(7) A&G Loading (Plant Related)	0.00%	0.00%	0.00%	0.00%	0.00%
(8) Total Carrying Charge Meters & H. Reg. (3) + (7)	9.78%	9.78%	9.78%	9.78%	9.78%
(9) Total Carrying Charge Services (6)+(7)	9.18%	9.18%	9.18%	9.18%	9.18%
(10) Annualized Meter & H. Regulator Costs (2) x (8)	\$24.28	\$24.50	\$47.27	\$58.59	\$163.21
(11) Annualized Service Costs (5) x (9)	\$80.87	\$80.87	\$159.97	\$159.97	\$200.45
(12) Total Annualized Meter, H. Reg. & Service Costs (10)+(11)	\$105.16	\$105.37	\$207.24	\$218.56	\$363.66
b) O&M - Meter, House Regulators & Services					
(13) Meter & H. Reg. O&M Expenses	\$23.93	\$24.17	\$46.66	\$57.67	\$160.81
(14) Service Lateral O&M expenses	\$8.84	\$8.84	\$17.50	\$17.50	\$21.92
(15) Customer Accounts Expenses	39.75	56.59	74.23	96.09	198.48
(16) Customer Service and Informational Expenses	0.25	0.54	2.55	2.96	53.60
(17) With A&G Loading [(13)+(14)+(15)+(16)] x 1.0000 (Non-plant Related)	72.77	90.14	140.94	174.22	434.81
(18) Customer-Related Cost (12) + (17)	\$177.93	\$195.51	\$348.18	\$392.78	\$798.47
Working Capital					
(19) Materials and Supplies [(2)+(5)] x 0.32%	\$3.62	\$3.62	\$7.13	\$7.50	\$12.33
(20) Prepayments [(2)+(5)] x 0.480%	5.42	5.43	10.69	11.25	18.50
(21) Cash Working Capital Allowance (8) x 1.66%	1.21	1.50	2.34	2.89	7.22
(22) Revenue Requirement for Working Capital [(19)+(20)+(21)] x 12.52%	\$1.28	\$1.32	\$2.52	\$2.71	\$4.76
(23) Total Customer-Related Costs (18) + (22)	\$179.21	\$196.83	\$350.70	\$395.49	\$803.24
(24) Total Annual Marginal Unit Cost	\$179.21	\$196.83	\$350.70	\$395.49	\$803.24

Schedule 25. Computation of Annual Customer-related Marginal Costs (II)

	SC1MUN	SC3CNH	SC3CH	SC3IND	SC3MUN
	(2001 Dollars)				
	(1)	(2)	(3)	(4)	(5)
a) Investment - Meter, House Regulators & Services					
(1) Meter & H. Regulator Investment	1,070.18	5,657.70	6,237.66	12,659.93	7,796.75
(2) With General Plant Loading (1) x 1.274	1,363.84	7,210.17	7,949.28	16,133.81	9,936.18
(3) Annual Economic Charge Related to Capital Investment	9.78%	9.78%	9.78%	9.78%	9.78%
(4) Service Investment	1,021.80	1,368.00	1,368.00	1,714.20	1,021.80
(5) With General Plant Loading (4) x 1.274	1,302.18	1,743.38	1,743.38	2,184.58	1,302.18
(6) Annual Economic Charge Related to Capital Investment	9.18%	9.18%	9.18%	9.18%	9.18%
(7) A&G Loading (Plant Related)	0.00%	0.00%	0.00%	0.00%	0.00%
(8) Total Carrying Charge Meters & H. Reg. (3) + (7)	9.78%	9.78%	9.78%	9.78%	9.78%
(9) Total Carrying Charge Services (6)+(7)	9.18%	9.18%	9.18%	9.18%	9.18%
(10) Annualized Meter & H. Regulator Costs (2) x (8)	\$133.33	\$704.87	\$777.12	\$1,577.24	\$971.36
(11) Annualized Service Costs (5) x (9)	\$119.49	\$159.97	\$159.97	\$200.45	\$119.49
(12) Total Annualized Meter, H. Reg. & Service Costs (10)+(11)	\$252.81	\$864.84	\$937.09	\$1,777.69	\$1,090.85
b) O&M - Meter, House Regulators & Services					
(13) Meter & H. Reg. O&M Expenses	\$131.38	\$694.69	\$765.76	\$1,554.25	\$957.20
(14) Service Lateral O&M expenses	\$13.08	\$17.50	\$17.50	\$21.92	\$13.08
(15) Customer Accounts Expenses	191.21	349.39	472.12	1457.76	660.18
(16) Customer Service and Informational Expenses	4.79	33.87	45.52	53.60	81.26
(17) With A&G Loading [(13)+(14)+(15)+(16)] x 1.0000 (Non-plant Related)	340.46	1095.45	1300.90	3087.53	1711.72
(18) Customer-Related Cost (12) + (17)	\$593.27	\$1,960.29	\$2,237.99	\$4,865.22	\$2,802.57
Working Capital					
(19) Materials and Supplies [(2)+(5)] x 0.32%	\$8.53	\$28.65	\$31.02	\$58.62	\$35.96
(20) Prepayments [(2)+(5)] x 0.480%	12.80	42.98	46.52	87.93	53.94
(21) Cash Working Capital Allowance (8) x 1.66%	5.65	18.18	21.59	51.24	28.41
(22) Revenue Requirement for Working Capital [(19)+(20)+(21)] x 12.52%	\$3.38	\$11.24	\$12.41	\$24.76	\$14.81
(23) Total Customer-Related Costs (18) + (22)	\$596.65	\$1,971.53	\$2,250.40	\$4,889.99	\$2,817.38
(24) Total Annual Marginal Unit Cost	\$596.65	\$1,971.53	\$2,250.40	\$4,889.99	\$2,817.38

Schedule 25. Computation of Annual Customer-Related Marginal Costs (III)

	SC5RNH	SC5RH	SC5CNH	SC5CH	SC5IND	SC5MUN
	(2001 Dollars)					
	(1)	(2)	(3)	(4)	(5)	(6)
a) Investment - Meter, House Regulators & Services						
(1) Meter & H. Regulator Investment	194.91	196.63	379.39	470.32	1,310.04	1,070.18
(2) With General Plant Loading (1) x 1.274	248.40	250.58	379.39	599.37	1,669.52	1,363.84
(3) Annual Economic Charge Related to Capital Investment	9.78%	9.78%	9.78%	9.78%	9.78%	9.78%
(4) Service Investment	691.60	691.60	1,368.00	1,368.00	1,714.20	1,021.80
(5) With General Plant Loading (1) x 1.274	881.38	881.38	1,743.38	1,743.38	2,184.58	1,302.18
(6) Annual Economic Charge Related to Capital Investment	9.18%	9.18%	9.18%	9.18%	9.18%	9.18%
(7) A&G Loading (Plant Related)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(8) Total Carrying Charge Meters & H. Reg. (3) + (7)	9.78%	9.78%	9.78%	9.78%	9.78%	9.78%
(9) Total Carrying Charge Services (6)+(7)	9.18%	9.18%	9.18%	9.18%	9.18%	9.18%
(10) Annualized Meter & H. Regulator Costs (2) x (8)	\$24.28	\$24.50	\$37.09	\$58.59	\$163.21	\$133.33
(11) Annualized Service Costs (5) x (9)	\$80.87	\$80.87	\$159.97	\$159.97	\$200.45	\$119.49
(12) Total Annualized Meter, H. Reg. & Service Costs (10)+(11)	\$105.16	\$105.37	\$197.06	\$218.56	\$363.66	\$252.81
b) O&M - Meter, House Regulators & Services						
(13) Meter & H. Reg. O&M Expenses	\$23.93	\$24.17	\$46.66	\$57.67	\$160.81	\$131.38
(14) Service Lateral O&M expenses	\$8.84	\$8.84	\$17.50	\$17.50	\$21.92	\$13.08
(15) Customer Accounts Expenses	22.97	25.03	66.08	79.89	108.84	59.89
(16) Customer Service and Informational Expenses	0.44	0.53	3.84	4.42	53.60	3.78
(17) With A&G Loading [(13)+(14)+(15)+(16)] x 1.0000 (Non-plant Related)	56.18	58.57	134.08	159.48	345.17	208.13
(18) Customer-Related Cost (12) + (17)	\$161.34	\$163.94	\$331.14	\$378.04	\$708.83	\$460.94
Working Capital						
(19) Materials and Supplies [(2)+(5)] x 0.32%	\$3.62	\$3.62	\$6.79	\$7.50	\$12.33	\$8.53
(20) Prepayments [(2)+(5)] x 0.480%	5.42	5.43	10.19	11.25	18.50	12.80
(21) Cash Working Capital Allowance (8) x 1.66%	0.93	0.97	2.23	2.65	5.73	3.45
(22) Revenue Requirement for Working Capital [(19)+(20)+(21)] x 12.52%	\$1.25	\$1.26	\$2.40	\$2.68	\$4.58	\$3.10
(23) Total Customer-Related Costs (18) + (22)	\$162.58	\$165.20	\$333.54	\$380.72	\$713.41	\$464.05
(24) Total Annual Marginal Unit Cost	\$162.58	\$165.20	\$333.54	\$380.72	\$713.41	\$464.05

IX. SUMMARY SCHEDULES

The first summary schedule included in this report (Schedule 27) shows all time-differentiated marginal costs, expressed in \$/Dt and adjusted for losses. These time-differentiated cost components include the procurement marginal costs (i.e. costs of delivered gas commodity), the monthly marginal costs of transmission and the high-pressure distribution mains and regulator stations. It also presents the sum of the time-differentiated marginal costs for customers served at each pressure level.

Schedule 27. Summary of the Time-Differentiated Monthly Marginal Costs

Month	Marginal Gas Commodity Costs adjusted by losses (\$/Dt)	Main & Reg. Station Costs Adjusted by Losses		Total Monthly-differentiated Marginal Costs for service at:	
		Transmission	High-Pressure	Transmission	High, Medium &
		Main	Main & R. Station	level	Low-pressure
		(\$/Dt)	(\$/Dt)	(\$/Dt)	(\$/Dt)
	(1)	(2)	(3)	(1)+(2) (4)	(1)+(2)+(3) (5)
Jan	5.27	0.14	0.46	5.40	5.86
Feb	5.12	0.01	0.02	5.13	5.15
Mar	4.92	0.02	0.05	4.94	4.99
April	4.38	0.00	0.00	4.38	4.38
May	4.30	0.00	0.00	4.30	4.30
June	4.34	0.00	0.00	4.34	4.34
July	4.39	0.00	0.00	4.39	4.39
Aug	4.41	0.00	0.00	4.41	4.41
Sept	4.43	0.00	0.00	4.43	4.43
Oct	4.46	0.00	0.00	4.46	4.46
Nov	4.70	0.00	0.00	4.70	4.70
Dec	4.84	0.02	0.07	4.86	4.93

Schedule 28 summarizes the monthly marginal costs that vary with design demand (local distribution facilities: medium & low-pressure distribution main and regulator stations) by customer class. Although these costs are applied on a per design demand basis, Schedule 28

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presents the monthly marginal local distribution costs per typical customer (or per typical customer's design demand) in each class. Schedule 29 summarizes the monthly marginal customer-related cost (in \$ per customer/month), by customer class.

**Schedule 28. Summary of Monthly Medium & Low-Pressure Mains and Reg.
Station Marginal Costs (Local Distribution) by Customer Class**

Rate	Class	Average Design Demand (1)	Annual Med & Low Pressure Main & Reg. Station Unit Cost (2)	Annual Med & Low Pressure Main & Reg. Station Cost per Customer (3)	Monthly Med & Low Pressure Main & Reg. Station Cost per Customer (4)
			59.13 + 3.75 x (1,803.56 / 1,221.45)	(1)*(2)	(3)/12
		(MCF/day at customer premises)	(\$/MCF/day at customer premises)	(\$)	(\$)
(1)	SC1RNH SC 1 Residential Non Heat	2.72	\$64.66	175.79	14.65
(2)	SC1RH SC 1 Residential Heat	2.74	64.66	176.94	14.75
(3)	SC1CNH SC 1 Commercial Non Heat	8.81	64.66	569.66	47.47
(4)	SC1CH SC 1 Commercial Heat	10.72	64.66	692.87	57.74
(5)	SC1IND SC 1 Industrial	29.73	64.66	1,922.39	160.20
(6)	SC1MUN SC 1 Municipal	23.81	64.66	1,539.61	128.30
(7)	SC3CNH SC 3 Commercial Non Heat	138.44	64.66	8,951.69	745.97
(8)	SC3CH SC 3 Commercial Heat	156.16	64.66	10,097.50	841.46
(9)	SC3IND SC 3 Industrial	353.82	64.66	22,878.75	1,906.56
(10)	SC3MUN SC 3 Municipal	202.25	64.66	13,078.11	1,089.84
(11)	SC5RNH SC 5 Residential Non Heat	2.72	64.66	175.79	14.65
(12)	SC5RH SC 5 Residential Heat	2.74	64.66	176.94	14.75
(13)	SC5CNH SC 5 Commercial Non Heat	8.81	64.66	569.66	47.47
(14)	SC5CH SC5 Commercial Heat	10.72	64.66	692.87	57.74
(15)	SC5IND SC 5 Industrial	29.73	64.66	1,922.39	160.20
(16)	SC5MUN SC 5 Municipal	23.81	64.66	1,539.61	128.30

**Schedule 29. Summary of Monthly Marginal Customer-Related Cost by
Customer Class**

	<u>Rate</u>	<u>Class</u>	<u>Monthly Customer- related Cost Per Customer (2001 Dollars) (1)</u>
(1)	SC1RNH	SC 1 Residential Non Heat	14.93
(2)	SC1RH	SC 1 Residential Heat	16.40
(3)	SC1CNH	SC 1 Commercial Non Heat	29.22
(4)	SC1CH	SC 1 Commercial Heat	32.96
(5)	SC1IND	SC 1 Industrial	66.94
(6)	SC1MUN	SC 1 Municipal	49.72
(7)	SC3CNH	SC 3 Commercial Non Heat	164.29
(8)	SC3CH	SC 3 Commercial Heat	187.53
(9)	SC3IND	SC 3 Industrial	407.50
(10)	SC3MUN	SC 3 Municipal	234.78
(11)	SC5RNH	SC 5 Residential Non Heat	13.55
(12)	SC5RH	SC 5 Residential Heat	13.77
(13)	SC5CNH	SC 5 Commercial Non Heat	27.80
(14)	SC5CH	SC 5 Commercial Heat	31.73
(15)	SC5IND	SC 5 Industrial	59.45
(16)	SC5MUN	SC 5 Municipal	38.67

n/e/r/a

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X. EFFICIENT PRICES

Schedules 30, 31 & 32 present “efficient prices,” which reflect RG&E’s current gas rate structures and the marginal costs computed in the study. Efficient prices were developed for each service classification (SC-1, SC-2 & SC-3), and differentiated by customer category in each case. The efficient prices include three different components:

1. a **seasonally-differentiated commodity charge** (in cents/therm), which reflects the gas commodity marginal costs, adjusted by losses and averaged for each season (Winter/Summer);
2. a **seasonally-differentiated delivery charge** (also expressed in cents/therm), which is separately established for:
 - a. those customers served under the transmission mains (above 124 psi): the charge shows the marginal cost of transmission mains adjusted for losses (and averaged for each season, and
 - b. those customers served under the distribution system (at or below 124 psi): the delivery charge reflects the marginal cost of transmission mains plus the marginal cost of high-pressure main and regulator stations adjusted for losses and averaged for each season.
3. a **fixed charge** (expressed in \$ per customer per month), which varies with customer category and reflects the sum of the monthly marginal customer-related costs plus the typical monthly marginal distribution facilities cost (medium & low-pressure mains and regulator stations) by customer class.⁷

⁷ Some SC3 customers are served directly under high-pressure system. Ideally, these customers should not bear the medium & low-pressure facilities costs. If setting separate rates for these high-pressure customers were considered appropriate, their monthly charges would be adjusted to exclusively show the customer-related costs. In addition, the marginal capacity costs for the other SC3 customers should also be reviewed, to exclude the effect of those larger customers on the class' "typical design demand" calculation.

Schedule 30. Efficient Gas Prices for Service Class SC-1**Service Classification No. 1 - General Service**

	Winter (Dec. - Mar.)	Summer (April - Nov.)
	(2001 dollars)	
Commodity Charge (cents/therm)	50.37663	44.26440
Delivery Charge (cents/therm)		
(a) Served from the Transmission System (> 124 psi)	0.45419	0.00001
(b) Served from the Distribution System (at or < 124 psi)	1.96973	0.00003

Fixed Charge (\$/customer/month) ⁽¹⁾

(1)	SC1RNH	SC 1 Residential Non Heat	29.58
(2)	SC1RH	SC 1 Residential Heat	31.15
(3)	SC1CNH	SC 1 Commercial Non Heat	76.70
(4)	SC1CH	SC 1 Commercial Heat	90.70
(5)	SC1IND	SC 1 Industrial	227.14
(6)	SC1MUN	SC 1 Municipal	178.02

⁽¹⁾ Monthly customer charges represent the sum of monthly marginal customer-related costs plus the *typical* monthly marginal distribution facilities cost (medium & low-pressure mains and regulator stations) by customer class. Monthly distribution facilities costs have been calculated by multiplying the typical customer's design demand in each class by the unit marginal capacity cost (\$5.39/MCF/day). The typical customer's design demands are as follows:

	MCF/day
SC1RNH:	2.72
SC1RH	2.74
SC1CNH	8.81
SC1CH	10.72
SC1IND	29.73
SC1MUN	23.81

n/e/r/a

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Schedule 31. Efficient Gas Prices for Service Class SC-3

Service Classification No. 3 - Large General Service

	Winter (Dec. - Mar.)	Summer (April - Nov.)
	(2001 dollars)	
Commodity Charge (cents/therm)	50.37663	44.26440
Delivery Charge (cents/therm)		
(a) Served from the Transmission System (> 124 psi)	0.45419	0.00001
(b) Served from the Distribution System (at or < 124 psi)	1.96973	0.00003

Fixed Charge (\$/customer/month) ⁽¹⁾

(1)	SC3CNH	SC 3 Commercial Non Heat	910.27
(2)	SC3CH	SC 3 Commercial Heat	1,028.99
(3)	SC3IND	SC 3 Industrial	2,314.06
(4)	SC3MUN	SC 3 Municipal	1,324.62

⁽¹⁾ Monthly customer charges represent the sum of monthly marginal customer-related costs plus the *typical* monthly marginal distribution facilities cost (medium & low-pressure mains and regulator stations) by customer class. Monthly distribution facilities costs have been calculated by multiplying the typical customer's design demand in each class by the unit marginal capacity cost (\$5.39/MCF/day). The typical customer's design demands are as follows:

	MCF/day
SC3CNH:	138.44
SC3CH:	156.16
SC3IND:	353.82
SC3MUN:	202.25

Schedule 32. Efficient Gas Prices for Service Class SC-5

Service Classification No. 5 - Small General Service

	Winter (Dec. - Mar.)	Summer (April - Nov.)
	(2001 dollars)	
Commodity Charge (cents/therm)	50.37663	44.26440
Delivery Charge (cents/therm)		
(a) Served from the Transmission System (> 124 psi)	0.45419	0.00001
(b) Served from the Distribution System (at or < 124 psi)	1.96973	0.00003

Fixed Charge (\$/customer/month) ⁽¹⁾

(1)	SC5RNH	SC 5 Residential Non Heat	28.20
(2)	SC5RH	SC 5 Residential Heat	28.51
(3)	SC5CNH	SC 5 Commercial Non Heat	75.27
(4)	SC5CH	SC 5 Commercial Heat	89.47
(5)	SC5IND	SC 5 Industrial	219.65
(6)	SC5MUN	SC 5 Municipal	166.97

⁽¹⁾ Monthly customer charges represent the sum of monthly marginal customer-related costs plus the *typical* monthly marginal distribution facilities cost (medium & low-pressure mains and regulator stations) by customer class. Monthly distribution facilities costs have been calculated by multiplying the typical customer's design demand in each class by the unit marginal capacity cost (\$5.39/MCF/day). The typical customer's design demands are as follows:

	MCF/day
SC5RNH	2.72
SC5RH	2.74
SC5CNH	8.81
SC5CH	10.72
SC5IND	29.73
SC5MUN	38.67

n/e/r/a

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APPENDIX A. 2003 Gas Commodity Price Forecast

Month	Gas Commodity Prices, Year 2003
	\$/Dt (2001\$)
Jan	4.81
Feb	4.69
Mar	4.54
April	4.12
May	4.09
June	4.12
July	4.17
Aug	4.20
Sept	4.22
Oct	4.24
Nov	4.47
Dec	4.62

BACK-UP SOURCES:

Year 2003 price forecasts for gas delivered at RG&E city gate.
Monthly prices computed as an average between the Dawn delivered
commodity costs and the Southpoint delivered commodity
costs. Data provided by RG&E.

n/e/r/a

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